



# *Hatcheria macraei* (Girard, 1855) (Siluriformes, Trichomycteridae): new record from northwestern Argentina

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**Abstract:** The geographic distribution of *Hatcheria macraei* (Girard 1855), the Patagonian Catfish, is herein extended north of the Río Colorado headwaters, the previous northernmost record for the species. *H. macraei* is registered from the Río Jagüé, in the headwaters of the Río Desaguadero basin (Northwestern Argentina). Morphometric and meristic data of collected specimens are included.

**Key words:** Patagonian Catfish, Desaguadero basin, La Rioja, Andes, South America

The Trichomycterin Patagonian Catfish, *Hatcheria*, with its single species, *Hatcheria macraei* (Girard, 1855), presents a wide distribution in southern South America, ranging from the western slope of the Andes in Chile to the Atlantic drainages in Argentina (Unmack et al. 2009, 2011). According to Unmack et al. (2011), the northernmost populations of *H. macraei*, both in Argentina and Chile, were found at 31° S, and the southern most populations at 49° S and 47° S in Argentina and Chile, respectively (see Table 1 in Unmack et al. 2011). Herein, we report an expansion on the distribution of *H. macraei* (Figure 1), with a new record for the species from the Río Jagüé (28°46' S, 68°09' W; Quebrada La Troya,

Departamento Vinchina, Provincia de La Rioja) at 1.475 m above sea level (Figure 2).

Ten specimens of *H. macraei* were caught at a section of the Río Jagüé with approximately 0.3 to 0.7 m deep and 2.0 to 5.0 m wide, running over a cobble and sand bottom (Figure 3). Morphometric data is presented in Table 1. The specimens were identified based on the following characteristics: elongated body, reaching maximum 210 mm in total length, with narrow and laterally compressed caudal peduncle; dorsal-fin origin behind middle of total length; anal fin placed under posterior part of dorsal-fin; pectoral-fin with small filament; long dorsal fin with distal margin concave, and 15 to 20 principal dorsal-fin rays; long supraorbital tendon-bone; more than 16 pairs of ribs; anus placed between pelvic-fin distal margins; caudal fin slightly emarginated; more than 32 caudal-fin rays, with 6+7 principal caudal rays and two segmented and non-branched caudal rays in both lobes; upper hypurals 3, 4, and 5 fused (Arratia and Menu-Marque 1981, Arratia 1990). Additional characters include: supraorbital canal continuous and narrow with pore s3 absent, laterosensory canal of trunk with 4 to 6 pores anteriorly, dorsal-fin supported internally by 12 or more pterygiophores, premaxilla rectangular, and autopalatine elongated and thin (LF pers. obs.).

*H. macraei* is a macroinvertevore and nocturnal



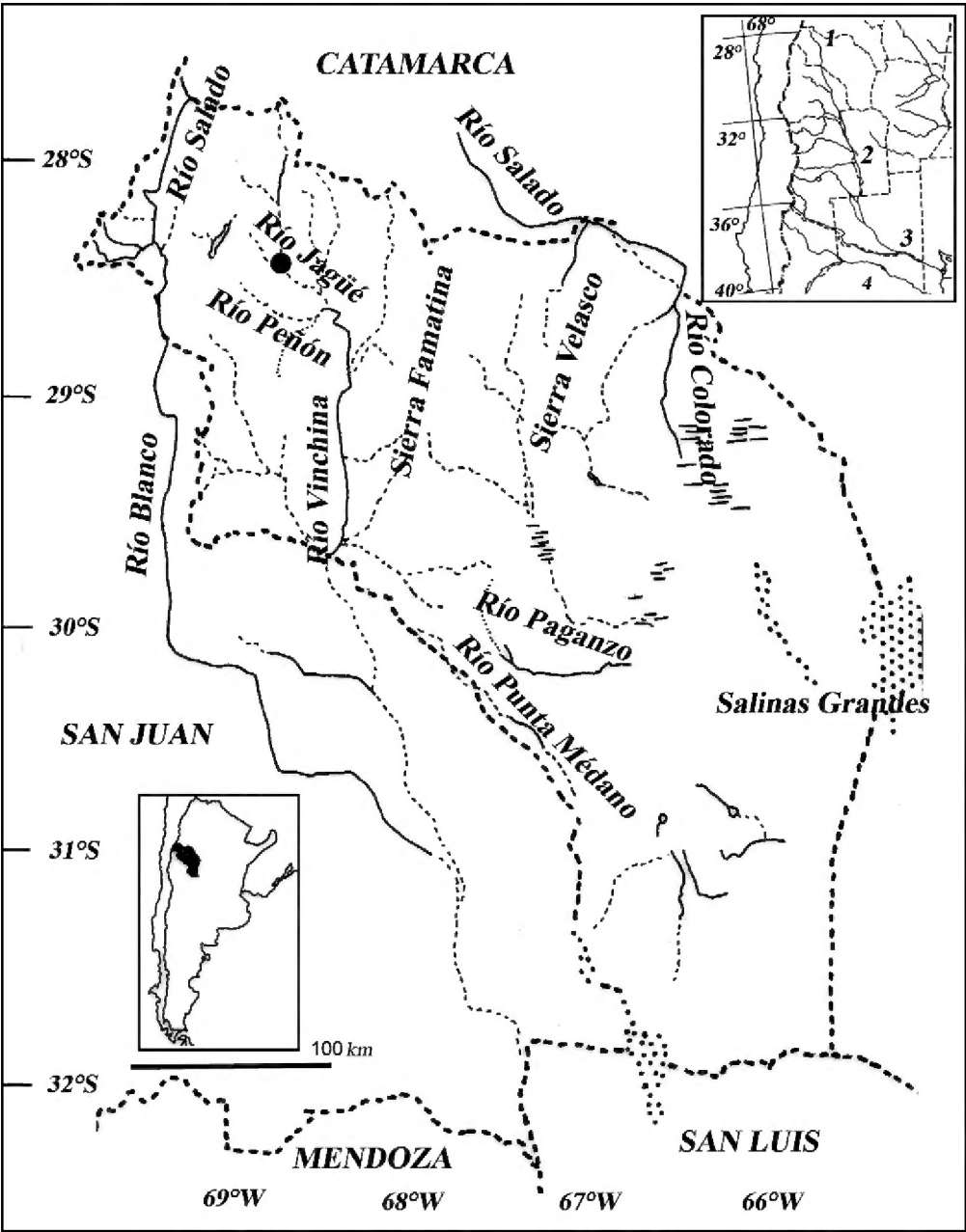
**Figure 1.** *Hatcheria macraei*, MCNI 1579, 60.6 mm SL, collected in Río Jagüé, Vinchina Department, La Rioja province, Argentina.

species, that hides during the day in rocky caves, or buried in the sand, and become more active at evening time or at night (Arratia and Menu-Marque 1981, LF pers. obs.). The variation in the pigmentation pattern of *H. macraei* could be correlated with the variable substrate of its habitat (Arratia 1983; Arratia et al. 1978; Arratia and Menu-Marque 1981: Figure 10A–C).

The Río Jagüé is part of the headwaters of the Desaguadero basin (Figure 2) and flows to the southern receiving different names Río Vinchina or Río Bermejo,

which develops into a wetland, the Lagunas de Guanacache or Huanacache, currently almost dried out. The wetlands of the Río Jagüé were connected to the Río Colorado (Figure 2) in historical times, however, since the early 1900s, the Desaguadero basin has been so heavily tapped for agriculture, industry, and municipal uses along its course (1.515 km) that rarely reaches the Río Colorado. Nowadays the Desaguadero basin, composed among others by the Río Jagüé, became technically an endorheic system.

The possibility of dispersal of *H. macraei* in the past between the Colorado and Desaguadero rivers is consistent with the widespread occurrence of *H. macraei*, in both headwater and lowland habitats. This suggests that the species could have taken advantage of opportunities to move between river basins, either at the headwaters or river termini (Unmack et al. 2011). Trichomycterid catfishes, which include about 200 species classified in eight families (Van Der Laan et al. 2014), seem well adapted to high elevation wetlands, temporary endorheic or poorly drained basins, and occasional permanent watercourses fed by snow melt



**Figure 2.** Map showing the sample site of *Hatcheria macraei* (●); 1, Río Jagüé; 2, Río Desaguadero; 3, Río Colorado; 4, Río Negro.



**Figure 3.** Habitat of *Hatcheria macraei*, Río Jagüé, upper Vinchina drainage, La Rioja province, Argentina.

**Table 1.** Morphometric and meristic data for *Hatcheria macraei* (n = 10) FACEN 0012 and MCNI 1579, collected in La Rioja province, Argentina.

Character	Range	Mean	SD
Standard length (mm)	45.4–94.4	64.0	15.1
Head length (mm)	8.4–15.8	11.5	2.2
Percents of standard length			
Body depth	12.4–14.4	13.3	0.7
Body width	13.0–16.0	14.2	0.9
Caudal peduncle length	23.6–27.2	25.3	1.1
Caudal peduncle depth	5.7–7.3	6.8	0.5
Predorsal length	59.7–63.6	61.4	1.3
Preanal length	67.6–71.3	69.0	1.1
Prepelvic length	48.3–54.7	51.3	2.1
Dorsal-fin base length	20.9–26.6	23.4	1.6
Anal-fin base length	7.7–9.1	8.3	0.5
Head length	15.8–20.4	18.1	1.3
Head width	14.9–17.7	16.3	1.0
Head depth	8.4–10.1	9.3	0.6
Percents of head length			
Interorbital width	25.4–31.6	29.6	1.9
Snout length	43.6–53.4	47.5	2.9
Nasal barbel length	30.6–50.6	40.9	6.6
Maxillary barbel length	45.6–65.5	53.4	5.9
Rictal barbel length	22.0–49.3	37.9	8.4
Mouth width	34.2–44.8	40.1	3.1
Eye diameter	11.3–13.9	12.8	0.7
First pectoral-fin ray length	87.6–114.0	99.4	8.4
First pelvic-fin ray length	51.6–88.6	60.8	10.2
First dorsal-fin length	66.5–93.1	75.9	7.6
First anal-fin length	64.4–95.7	79.5	9.7
Counts			
Dorsal-fin ray	16–21		
Anal-fin ray	5–7		
Pectoral-fin ray	9–10		
Pelvic-fin ray	5		
Caudal-fin ray	13		



of higher elevations, all characteristics that fit the headwaters region of the Río Desaguadero (Fernandez and Vari 2004, 2009). The only native fishes known for this region are species of Trichomycterinae (*Hatcheria macraei*, *Trichomycterus alterus*, *T. corduvensis*, *T. heterodontus*, *T. hualco*, *T. pseudosilvinichthys*, *T. riojanus*, and *Silvinichthys* sp.). However, no other species of *Hatcheria* were collected in Río Jagüé.

Thus, *H. macraei* is herein recorded from the Río Jagüé (Figure 2), north of the Río Colorado headwaters, the previous northernmost record for the species (Ringuelet et al. 1967; Arratia et al. 1983; Unmack et al. 2009). The new record would be consistent with reports for northern La Rioja by Ringuelet et al. (1967: “Chilecito, La Rioja”) and Arratia et al. (1983: “Río Grande, La Rioja”), who mentioned the presence of the species but did not provide specific locality data that would allow us to confirm those records.

Institutional acronyms follow Sabaj Pérez (2010), except for the acronym for Facultad Ciencias Exactas y Naturales, Universidad Nacional de Catamarca, Catamarca, Argentina (FACEN). The number of examined specimens is indicated in parentheses; CS, cleared and stained.

**MATERIAL EXAMINED:** FACEN 0012 (1); MCNI 1579 (9). Comparative material: *H. macraei* FACEN 0014 (1); FML 1139 (1); FML 2073 (1 CS); MACN 3598 (2); MCNI 1521 (1 CS); MCNI 1522 (1 CS), MCZ 8298 (1 syntype); USNM 1546 (1 syntype); USNM 126664 (1 CS). *H. patagoniensis* CAS 63844 (2 paratypes); CAS 63842 (1). *H. titcombi* CAS 28557 (holotype). Measurements to the nearest 0.01 mm were made using a digital caliper following Tchernavin (1944) and Fernandez and Vari (2012).

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## LITERATURE CITED

Arratia, G. 1983. Preferencias de habitat de peces Siluriformes de aguas continentales de Chile (Fam. Diplomystidae y Trichomycteridae). Studies Neotropical Fauna Environmental 18(4): 217–237. doi: 10.1080/01650528309360637

Arratia, G. 1990. The South American Trichomycterinae (Teleostei: Siluriformes), a problematic group; pp. 395–403, in: G. Peters and R. Hutterer (eds.). Vertebrates in the Tropics. Bonn: Museum

Alexander Koenig.

- Arratia, G. and S. Menu-Marque. 1981. Revision of the freshwater catfishes of the genus *Hatcheria* (Siluriformes, Trichomycteridae) with commentaries on ecology and biogeography. Zoologisches Anzeiger 207: 88–111.
- Arratia, G.; M.B. Peñafort and S. Menu-Marque. 1983. Peces de la región sureste de los Andes y sus probables relaciones biogeográficas actuales. Deserta 7: 48–107.
- Arratia, G., A. Chang, S. Menu-Marque and S. Menu-Marque. 1978. About *Bullockia* gen. nov., *Trichomycterus mendozensis* n. sp. and revision of the family Trichomycteridae (Pisces: Siluriformes). Studies Neotropical Fauna Environmental 13(3–4): 157–194. doi: 10.1080/01650527809360539
- Eigenmann, C. 1918. The Pygidiidae, a family of South American catfishes. Memories Carnegie Museum 7: 259–398. doi: 10.5962/bhl.title.43951
- Fernandez, L. and R.P. Vari. 2004. New species of *Trichomycterus* from midelevation localities of northwestern Argentina (Siluriformes: Trichomycteridae). Copeia 2004(4): 876–882. doi: 10.1643/CI-04-094R1
- Fernandez, L. and R.P. Vari. 2009. New species of *Trichomycterus* from the Andean Cordillera of Argentina (Siluriformes: Trichomycteridae). Copeia 2009(1): 195–202. doi: 10.1643/CI-08-083
- Fernandez, L. and R.P. Vari 2012. New species of *Trichomycterus* (Teleostei: Siluriformes) from the Andean Cordillera of Argentina and the second record of the genus in thermal waters. Copeia 2012(4): 631–636. doi: 10.1643/CI-12-035
- Ringuelet, R.A., R. Arámburu and A.A. de Arámburu. 1967. Los peces argentinos de agua dulce. La Plata: Comisión Investigaciones Científicas, 602 pp.
- Sabaj Pérez, M.H. 2010. Standard symbolic codes for institutional resource collections in herpetology and ichthyology: an online reference. Version 2.0 (8 November 2010). American Society of Ichthyologists and Herpetologists, Washington, DC. Accessed at [http://www.asih.org/sites/default/files/documents/resources/symbolic\\_codes\\_for\\_collections\\_v5.0\\_sabajperez\\_2014.pdf](http://www.asih.org/sites/default/files/documents/resources/symbolic_codes_for_collections_v5.0_sabajperez_2014.pdf)
- Tchernavin, V. 1944. A revision of some Trichomycterinae based on material preserved in the British Museum Natural History. Proceedings of the Zoological Society of London 114: 234–275. doi: 10.1111/j.1096-3642.1944.tb00219.x
- Unmack, P.J., E.M. Habit, and J.B. Johnson. 2009. New records of *Hatcheria macraei* from Chilean Province. Gayana 73(1): 102–110. doi: 10.4067/S0717-65382009000100013
- Unmack P.J., J.P. Barriga, M.A. Battini, E.M. Habit and J.B. Johnson. 2011. Phylogeography of the catfish *Hatcheria macraei* reveals a negligible role of drainage divides in structuring populations. Molecular Ecology 21(4): 942–959. doi: 10.1111/j.1365-294X.2011.05408.x
- Van Der Laan, R., W.N. Eschmeyer and R. Fricke. 2014. Family-group names of recent fishes. Zootaxa 3882: 230 pp. doi: 10.11646/zootaxa.3882.1.1

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